



FOOTINGS

I. Chesterfield County Minimum Standard Footing for New Dwellings, Additions, Attached Garages with Habitable Space and Detached Garages with Habitable Space

All new dwellings shall have soil testing. Additions and garages with (potentially) habitable space in the Triassic Area shall have soil testing; if the structure is outside the Triassic Area, soil testing is not required provided that the footings are constructed in accordance with the Chesterfield County Minimum Standard footing.

The soil scientist's analysis in the soil report will determine if the footing has to be engineered:

1. If the soil analysis shows a "LOW" probability for shrink-swell, the soil engineer may opt to use the County Minimum Standard Footing Design.
2. If the soil analysis shows anything other than "LOW", then a registered design professional (registered structural engineer or architect) is required to submit the design for the footings.

Chesterfield County Minimum Standard Footing:

1. Minimum footing depth to the bottom of the footing shall be 24 inches.
2. The minimum footing width shall be 16 inches.
3. Minimum thickness of concrete footing shall be 8 inches.
4. Two continuous #4 ($\frac{1}{2}$ inch) reinforcing bars shall be provided throughout the footing. All reinforcing steel shall be secured in place and lapped a minimum of 12 inches where spliced, and shall be supported and anchored with metal stakes and/or chairs which provide a minimum of 3 inches clearance from the sides and bottom of the excavation. Clay brick or CMU blocks shall not be used for support and/or anchors.
5. The minimum overlap at all footing steps shall be two times the footing thickness.
6. Footings supporting interior piers shall be continuous and tied into the exterior footings. This requirement shall not apply to basement column footings or isolated interior fireplace footings.

Notes:

1. For additions, the load bearing walls must be on continuous footings; the foundation may be either continuous wall or piers.
2. The bearing walls of modular homes with wood floor framing (i.e. not on steel chassis) shall be supported either concrete piers erected on the continuous footing or continuous masonry foundation walls erected on continuous footings.
3. For heavy concentrated point loads, footings may have to be widened in order to carry the extra heavy load. An engineer should be consulted for this.

II. Chesterfield County Minimum Standard Footing for detached garages without (potentially) habitable space and sheds over 256 sqft in area

A soil report is not required for detached garages without habitable space nor sheds, and the Chesterfield County Minimum Standard Footing is acceptable:

1. Minimum depth to the bottom of the footing trench shall be 18 inches.
2. Minimum thickness of concrete footing shall be 8 inches.

3. The minimum footing width shall be 12 inches for one-story structures and 16 inches for two-story structures with storage at the second level.
4. Reinforcement bars are optional.

Note:

Sheds less than 256 square feet in area may be supported by structural elements of 'ground-contact' pressure treated material that is in direct contact with firm, level soil. Such sheds shall be anchored to withstand applicable wind loads.

III. Chesterfield County Minimum Standard Footing for decks (on pier foundation)

A soil report is not required for decks, and the Chesterfield County Minimum Standard Footing is acceptable:

1. Minimum depth to the bottom of the footing trench shall be 18 inches.
2. Minimum thickness of concrete footing shall be 8 inches.
3. The minimum footing dimensions shall be 12 inches by 12 inches if square, or 12 inches in diameter if round. A 12inch X 12inch X 8 inch solid concrete pier block may be used in place of the concrete footing.

IV. Chesterfield County Minimum Standard Footing for rooms constructed over existing decks

For houses in the Triassic Area, an engineer must perform a personal inspection and submit a sealed letter stating that the existing footings are satisfactory to support the new loads, or provide a design for new footings if they are not satisfactory for the new loads.

For houses outside the Triassic area, the existing footing shall be excavated to allow the County inspector to verify that it is at least 18 below grade and that it is still in adequate quality to support the additional construction.

V. Footing Inspections

There are two separate footing issues regarding footing inspections: the actual excavation (trench or hole) and the pouring of the concrete into those excavations:

1. The County requires all footing excavations to be inspected prior to the pouring of the concrete to ensure that they are to the depth and size required and the rebar placement is correct. This includes all houses, detached structures and decks. The County will provide an inspector to perform this inspection, or the contractor/homeowner may chose to have an independent engineer perform that function.
 - A. If the excavation is for a deck, the contractor/homeowner may combine the final deck inspection with the footing inspection; if this is done, the actual bottom of the hole must be available for the County inspector to verify the depth of the hole prior to backfilling, and the deck must be completely finished.
2. With regards to the actual pouring of the concrete into the excavations, the County will provide an inspector, or the contractor/homeowner may chose to have an independent engineer perform these functions:
 - A. For all new home footings, the inspector will perform a "slump test" to ensure that the concrete is the correct strength and quality, verify the appropriate depth of the pour, review the concrete delivery ticket for proper design mix, verify that the placement is done in accordance with appropriate standards.
 - B. For all other construction projects requiring footings (i.e. additions, detached garages and decks), an inspection of the concrete pouring is not required.

Note:

Habitable space is any room which is intended to be used for living, eating, cooking, sleeping, etc.. It does not include utility rooms, laundry rooms, closets, hallways, bathrooms, etc..

In order for a space to qualify as a "habitable" room it must be:

- At least 70 square feet,
- have at least 35 square feet with 7 foot ceilings (the other ceiling area may be sloped down to 5 knee walls – areas with less than 5 feet of headroom are allowed, but do not contribute to the requirement of 70 square feet room),
- Some exceptions in head room are allowed for basements where beams and piping may project down below 7 feet.
- All habitable rooms must have natural light, ventilation, and heat (air conditioning is not required), or an equivalent amount of artificial light, and ventilation are permitted.

"(Potentially) habitable" space is any space which has the characteristics of habitable space, but has not yet been finished off. Footings should be designed and constructed for the eventuality that the space will be turned into habitable space in the future, either by the current homeowner or a future homeowner.



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COMPOSITE LIST OF REQUIREMENTS FOR SOIL REPORTS AND FOOTINGS

	In Triassic Area (refer to Triassic map)	Outside Triassic Area (refer to Triassic map)
New house	Soil test required. "Low" ⁽¹⁾ 24" deep, "Moderate" or higher ⁽²⁾ engineer design	Soil test required. "Low" ⁽¹⁾ 24" deep, Moderate or higher ⁽²⁾ engineer design
Industrialized (modular) home or manufactured home	No test required. Manufacturer's design, or engineered design, or 24" deep cont footing	No test required. Manufacturer's design, or engineered design, or 24" deep cont. footing
Addition to house with (potentially) habitable space	Soil test required. "Low" ⁽¹⁾ 24" deep, "Moderate" or higher ⁽²⁾ Engineer design	No test required. Footing 24" deep
Addition to house without (potentially) habitable space, screen porches, and unheated (three season) porches	No test required. Footing 24" deep	No test required. Footing 24" deep
Conversion of sunroom to Florida room	Engineer's sealed certification of existing footings	Excavation required to verify 18" deep existing footing - by County inspector
Detached garage with (potentially) habitable space	Soil test required. Footing 24" deep	No test required. Footing 24" deep
Detached garage without (potentially) habitable space	No test required. Footing 18" deep	No test required. Footing 18" deep
Decks	No test required. Footing 18" deep	No test required. Footing 18" deep
Wood tool sheds	No test required. See SHEDS	No test required. See SHEDS
Metal carports and pre-fab metal sheds	No test required. Engineer specified anchors	No test required. Engineer specified anchors
Pre-fab metal buildings	No test required. Footing 18" deep	No test required. Footing 18" deep

(1) LOW refers shrink swell potential, based on engineer's analysis in the soil report.

(2) MODERATE OR HIGHER potential for shrink swell, based on engineer's analysis of the soil report. An engineered footing is required.